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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/840,403	04/23/2001	David J. Boothby	05110-009003	5942

26161 7590 08/03/2006

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EXAMINER	
PHAM, KHANH B	

ART UNIT	PAPER NUMBER
2166	

DATE MAILED: 08/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/840,403	BOOTHBY ET AL.	
	Examiner	Art Unit	
	Khanh B. Pham	2166	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 May 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *35,37 and 39-48* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *35,37 and 39-48* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3/23/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. **Claims 35, 37, 39-40, 45-48** are rejected under 35 U.S.C. 103(a) as being unpatentable over Salkewicz et al. (US 5,970,502 A), hereinafter "Salkewicz" and in view of Preneel ("Cryptographic Hash Functions"), hereinafter "Preneel".

As per claim 35, Salkewicz teaches a method for synchronizing a first database with a second database (Col. 2 lines 31-35) comprising:

- "reading a first record of the first database" at Col. 7 lines 1-10;
- "assigning a code to the first record of the first database" at Col. 10 lines 22-36;
- "using the code in the synchronization process to determine whether a record of the second database is identical to the first record of the first database" at Col. 10 lines 37-54.

The difference between Salkewicz and the invention of claim 35 is that Salkewicz uses the "instance identification" code in the synchronization process but does not explicitly teaches the "instance identification" code comprises "a hash number computed based on at least a portion of the content of the first record of the first database, the

code being insufficient to reconstruct the record but sufficient to identify the record" as claimed.

However, hash function is well known in the art, which is used to reduce the size of data record by producing a smaller hash key which represent the data record, as taught by Preneel at page 4, Fig. 2. Preneel teaches, at page 3, section 3.1, the "one-way hash function" h which accepts input data X and produces a smaller fix length hash key Y such that if input data X is modified, then the hash key Y is also changed. Preneel therefore teaches a hash number (i.e., "Y") computed based on at least a portion of the content of the first data record (i.e., "X"), the code being insufficient to reconstruct the record (i.e., "given a Y, it is "hard" to find a message X such that h(X) = Y"), but sufficient to identify the record (i.e., "given X and h(x) it is hard to find a message X' $\neq$X such that h(X') = h(X)", or in other words, Y can be used to identify X).

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine Salkewicz and Preneel's teachings by implementing Salkewicz's instance identification using hash keys because Salkewicz suggests that "[t]his embodiment is **particularly useful when the instance identification information is small with respect to the record size**. Rather than synchronizing by copying each record in its entirely, only the much smaller instance identification information is transmitted, thereby **saving time and conserving system resource**" (Col. 10 line 49-51). Further, using hash key would also allow quickly identifying changed in the data record since only a small change in the data

record would produce different hash key, and only identical data records produce identical hash key, as taught by Preneel at page 6, section 3.1.

As per claim 37, Salkewicz teaches a computer program for synchronizing the first database with a second database (Col. 2 lines 31-35) comprising:

- "reading a first record of the first database" at Col. 7 lines 1-10;
- "assigning a code to the first record of the first database" at Col. 10 lines 22-36;
- "using the code in the synchronization process to determine whether a record of the second database is identical to the first record of the first database" at Col. 10 lines 37-54;

The difference between Salkewicz and the invention of claim 37 is that Salkewicz uses the "instance identification" code in the synchronization process but does not explicitly teaches the "instance identification" code comprises "a hash number computed based on at least a portion of the content of the first record of the first database, the code being insufficient to reconstruct the record but sufficient to identify the record" as claimed.

However, hash function is well known in the art, which is used to reduce the size of data record by producing a smaller hash key which represent the data record, as taught by Preneel at page 4, Fig. 2. Preneel teaches, at page 3, section 3.1, the "one-way hash function" h which accepts input data X and produces a smaller fix length hash key Y such that if input data X is modified, then the hash key Y is also changed. Preneel therefore teaches a hash number (i.e., "Y") computed based on at least a portion of the

content of the first data record (i.e., "X"), the code being insufficient to reconstruct the record (i.e., "given a Y, it is "hard" to find a message X such that h(X) = Y"), but sufficient to identify the record (i.e., "given X and h(x) it is hard to find a message X' ≠X such that h(X') = h(X)", or in other words, Y can be used to identify X).

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine Salkewicz and Preneel's teachings by implementing Salkewicz's instance identification using hash keys because Salkewicz suggests that "[t]his embodiment is **particularly useful when the instance identification information is small with respect to the record size**. Rather than synchronizing by copying each record in its entirely, only the much smaller instance identification information is transmitted, thereby **saving time and conserving system resource**" (Col. 10 line 49-51). Further, using hash key would also allow quickly identifying changed in the data record since only a small change in the data record would produce different hash key, and only identical data records produce identical hash key, as taught by Preneel at page 6, section 3.1.

As per claims 39, 40, Salkewicz and Preneel teach the method and computer program of claim 35, 37 discussed above. Salkewicz also teaches: "wherein the first and second databases are located on different computer" at Col. 1 lines 5-10

As per claims 45-46, Salkewicz and Preneel teach the method and computer program of claims 35, 37 discussed above. Salkewicz also teaches: "wherein the code

assigned to the first record comprises the hash number combined with other information" at Col. 10 lines 17-27.

As per claims 47-48, Salkewicz and Preneel teach the method and computer program of claims 45, 46 discussed above. Salkewicz also teaches; "wherein the records of the first database are identified by unique Ids, and the code assigned to the first record comprises a combination of the hash number and the unique ID of the record." at Col. 10 lines 17-27.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. **Claims 41-44** are rejected under 35 U.S.C. 103(a) as being unpatentable over Salkewicz and Preneel as applied to claims 35, 37, 39-40 and 45-48 above, and further in view of Kucala (US 5,727,202 A), hereinafter "Kucala".

As per claim 41, 42, Salkewicz and Preneel teach the method and computer program of claims 35, 37 as discussed above. Salkewicz and Preneel teach a method for synchronizing a first and second database but Salkewicz does not explicitly teach "the first and second databases each comprise at least one of scheduling, diary, and contact manager database". However, it is well known in the art to store scheduling, diary, and contact manager in a database, as exemplary by Kucala. Kucala teaches a

method for synchronizing two databases containing scheduling, diary and contact data at Col. 2 lines 50-65. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine Salkewicz, Preneel and Kucala's teachings so that Salkewicz's method would be used to synchronize scheduling, diary and contact manager database as claimed. As a result, Salkewicz's method could be used to synchronize Personal information management data between desktop computer and handheld device, as suggested by Kucala at Col. 1 lines 14-22.

As per claim 43-44, Salkewicz, Preneel and Kucala teach the method and computer program of claim 41, 42 discussed above. Kucala also teaches: "wherein the first and second databases have different record structure" at Col. 4 lines 44-58.

Response to Arguments

5. Applicant's arguments filed May 3, 2006 have been fully considered but they are not persuasive. The examiner respectfully traverses applicant's arguments.

Regarding claims 35 and 37, applicant argued that: "Salkewicz teaches nothing even remotely relevant to the invention. The only resemblance of Salkewicz and the invention is that both use the word, "hash"." Applicant then further argued that Salkewicz's "hash" is different from applicant's "hash" because:

1) Salkewicz does not compute hash number based on at least a portion of the content of a record.

2) Salkewicz does not use the number produced by the modulo-3 arithmetic to determine whether the database record is identical to another record.

3) Salkewicz does not compute a hash number that is "insufficient to reconstruct the record but sufficient to identify the record".

In response to the above arguments, the examiner respectfully submits that Salkewicz is not relied on by the examiner for the teaching of "hash"; therefore, applicant's arguments regarding Salkewicz's hash are irrelevant.

As specifically pointed out in this and previous Office Action, Salkewicz teaches each and every limitations of independent claims 35, 37, except that Salkewicz uses the "instance identification" code instead of "a hash number" to determine whether a record is identical to another record. Even though Salkewicz does not used hash function to compute the "instance identification", Salkewicz suggests that "this embodiment is particular useful when the instance identification information is small with respect to the record size" (Col. 10 lines 49-51). On the other hand, it is widely known, as admitted by applicant at page 2 of the remark and taught by Preneel at page 3 that a computer record can be represented by a hash key that is considerably smaller than the record. Thus, using a hash key as record's identification is an obvious modification to Salkewicz in view of Preneel and the level of a person of ordinary skill in the art. The 103 rejection based upon Salkewicz and Preneel is therefore proper and should be maintained.

Conclusion

6. The prior art made of record, listed on form PTO-892, and not relied upon, if any, is considered pertinent to applicant's disclosure.

If a reference indicated as being mailed on PTO-FORM 892 has not been enclosed in this action, please contact Lisa Craney whose telephone number is **(571) 272-3574** for faster service.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khanh B. Pham whose telephone number is (571) 272-4116. The examiner can normally be reached on Monday through Friday 7:30am to 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hosain Alam can be reached on (571) 272-3978. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Khanh B. Pham
Examiner
Art Unit 2166

July 24, 2006

Kpham